Manchester Urban Ponds Restoration Program
Water Quality Parameter Data Tables 2000 – 2019

Disclaimer: Please note that the **Chemical and Biological Parameter Explanations** discussed within the context of this document are extracted from the NH Volunteer Lake Assessment Program (VLAP) document of the same name which can be found at: http://des.nh.gov/organization/divisions/water/wmb/vlap/documents/parameters.pdf. Please also note that the tables below are **NOT** intended to assert specific water quality standard violations, but rather, are intended to provide the interested citizen with general categorical information for each water quality parameter's annual and historic averages. Lastly, the tables below are not intended to replace the valuable information included within the annual water quality reports. To view the annual VLAP reports for each waterbody, as well as the new regional VLAP reports, visit www.manchesternh.gov/urbanponds and click on "Publications".

Average Acid Neutralizing Capacity (ANC) Measurements in Milligrams per Liter (mg/L)

ANC (mg/l as C_aCO_3)	Category
< 0	Acidified
0 - 2	Extremely Vulnerable
2.1 - 10	Moderately Vulnerable
10.1 - 25	Low Vulnerability
> 25	Not Vulnerable

Buffering capacity or Acid Neutralizing Capacity (ANC) describes the ability of a solution to resist changes in pH by neutralizing the acidic input to the lake. Historically, the waters of NH have had low ANC because of the prevalence of granite bedrock. The relatively low ANC values means that NH surface waters are vulnerable to the effects of acid precipitation. There is no numeric water quality standard for ANC, but values can typically be thought of in categories of vulnerability (to acid inputs).

Annual Average & Historical Average Epilimnion (Top Layer of Waterbody) ANC Measurements

Waterbody	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Historical Average
Crystal Lake	18.1	17.3	20.2	18.5	14.4	16.3	17.1	16.7	15.2	16.1	16.2	17.0	14.8	18.7	18.1	Not Monitored	20.1	26.0	19.8	19.7	**17.9**
Dorrs Pond	16.2	21.7	26.5	20.3	24.3	20.4	22.4	28.5	18.6	25.3	27.4	24.2	30.0	23.3	24.8	29.3	34.9	25.0	18.5	26.9	**24.4**
Maxwell Pond	6.8	9.8	6.7	6.4	5.5	5.6	6.1	9.7	5.9	Since the Maxwell Pond dam was removed (and Black Brook was restored) in 2009, ANC is no longer measured since the water is no longer impounded to create a "deep spot."											**6.9**
Nutts Pond	14.3	17.3	15.4	17.0	13.5	16.6	16.7	18.0	13.4	16.3	22.8	18.7	16.4	17.8	18.2	22.6	23.8	20.8	21.2	24.1	**18.2**
Pine Island Pond	17.1	20.1	21.2	14.6	11.5	16.6	13.8	17.6	20.2	12.2	21.6	18.0	16.9	17.8	18.5	30.0	34.4	27.0	21.1	29.1	**20.0**
Stevens Pond	34.2	31.0	30.8	29.2	29.1	28.7	30.3	35.2	25.0	27.9	38.1	33.4	28.1	30.7	30.9	33.3	37.0	31.2	29.3	36.3	**31.5**

Average Chlorophyll-a (Chl-a) Measurements in Milligrams per Meters Cubed (mg/m^3)

Chl-a (mg/m^3)	Category
0 - 5	Good
5.1 - 15	More than Desirable
> 15	Nuisance Amounts

Chlorophyll-a, a pigment found in plants, is used as an indicator of algal growth. Because algae is a plant and contains chlorophyll-a, the concentration of chlorophyll-a found in the water gives us an estimation of the concentration of algae. If the chlorophyll-a concentration increases, this typically indicates an increase in the algal population. There is no numeric surface water quality standard for chlorophyll-a, but values can typically be thought of in the categories of "good", "more than desirable", or "nuisance amounts".

Annual Average & Historical Average Metalimnion (Middle Layer of Waterbody) Chlorophyll-a Measurements

Waterbody	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Historical Average
Crystal Lake	3.39	4.75	2.64	3.14	4.62	1.79	5.95	2.43	4.23	6.57	3.31	3.32	3.85	3.77	3.01	Not Monitored	3.30	2.87	3.55	4.16	**3.72**
Dorrs Pond	30.84	14.75	8.40	18.03	15.09	8.34	12.13	8.83	16.52	8.50	10.69	11.67	5.10	10.15	9.21	9.07	13.74	5.69	9.63	4.85	**11.56**
Maxwell Pond	1.55	3.17	1.68	1.65	2.30	2.33	1.89	5.67	2.42	Since the Maxwell Pond dam was removed (and Black Brook was restored) in 2009, Chl-a is no longer measured since the water is no longer impounded to create a "deep spot."											**2.52**
Nutts Pond	27.42	14.01	10.81	17.13	19.31	13.49	19.53	4.67	6.96	4.51	3.63	8.86	5.73	8.13	12.14	10.05	17.40	8.02	5.23	6.89	**11.20**
Pine Island Pond	8.00	13.20	8.23	2.21	8.97	8.46	11.04	10.63	9.81	3.04	8.04	12.98	11.93	6.63	9.98	21.81	12.33	10.77	9.80	16.79	**10.23**
Stevens Pond	8.68	6.26	10.32	4.28	9.44	3.04	63.57	35.47	16.29	12.35	11.33	9.58	32.62	8.02	6.13	5.87	19.94	7.51	19.65	7.88	**14.91**

Average Chloride (Cl-) Measurements in Milligrams per Liter (mg/L)

The chloride ion is found naturally in some surface ground waters and in high concentrations in seawater. Research has shown that elevated chloride levels can be toxic to freshwater aquatic life. In order to protect freshwater aquatic life, New Hampshire has adopted an acute standard of 860 mg/L for a one-hour average and a chronic standard of 230 mg/L for a four-day average. The chloride content in New Hampshire lakes is naturally low, generally less than 2 mg/L in surface waters located in remote areas away from habitation. Higher values are generally associated with salted highways, and water-softening systems from residential and commercial use that discharge into septic systems. Annual average and historic average chloride measurements above 230 mg/L are highlighted in orange in the table below to indicate stations that may exceed the threshold for chloride on more than one occasion throughout the monitoring season.

Annual Average & Historical Average Chloride Measurements											
Waterbody	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Historical Average**
Crystal Lake											
Epilimnion	110	100		22	101	Not Monitored	137	135	148	126	**110**
Dorrs Pond											
Epilimnion	193	147	147	112	167	217	257	193	162	210	**181**
Inlet	545	317	232	240	230	413	277	304	255	418	**323**
East Inlet 2	140	167	149	160	240	277	143	241	301	274	**209**
Juniper Street Inlet		118	87	115	157	223	210	208	175	180	**164**
Outlet	230	100			183	227	240	200	165	209	**194**
Nutts Pond											
Epilimnion	195	180	190	155	360	370	390	305	353	304	**280**
Inlet	240	217	180	250	360	447	224	512	500	461	**339**
Outlet		160			350	373	387	299	350	307	**318**
Pine Island Pond											
Epilimnion	88			86	91	130	143	134	115	136	**115**
Inlet	130			93	93	147	163	175	136	157	**137**
Outlet	100				89	130	137	133	112	133	**119**
Stevens Pond											
Epilimnion	217	200	195	175	327	410	343	256	276	296	**270**
Outlet						403	353	287	300	298	**328**

Average Conductivity Measurements in Micromhos per Centimeter (uMhos/cm)

Conductivity (uMhos/cm)	Category
0 - 100	Normal
101 - 200	Low Impact
201 - 500	Moderate Impact
> 501	High Impact
> 835	Exceeding Chronic Chloride Standard

Conductivity is the numerical expression of the ability of water to carry an electrical current. It is determined by the number of ionic particles present. The soft waters of New Hampshire have traditionally had low conductivity values. High conductivity may indicate pollution from such sources as road salting, septic systems, or urban/agriculture runoff. **Note:** There is no numeric surface water quality standard for conductivity, and good and bad levels can not be constructed because variations in watershed geology can result in natural fluctuations in conductivity. However, values in NH lakes exceeding 100 uMhos/cm generally indicate external influences.

Annual Average & Historical Average Conductivity Measurements

Waterbody	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Historical Average
Crystal Lake																					
Epilimnion	419	440	444	473	459	511	383	359	422	381	428	421	393	386	449	Not Monitored	575	546	536	476	**447**
Hypolimnion	417	481	433	526	454	525	385	351	435	392	404	425	396	393	449	Not Monitored	563	535	519	472	**450**
Dorrs Pond																					
Epilimnion	408	831	883	759	644	842	455	631	512	517	765	571	564	501	667	811	933	705	577	724	**665**
Hypolimnion	432	825	904	782	653	625	520				668										**676**
Inlet	414	876	1095	1015	850	1014	1030	1250	553	761	1752	1246	840	764	844	1513	1057	1240	873	1396	**1019**
East Inlet 2	707	814	917	1162	807	843		799	560	722	663	657	581	692	926	1029	592	907	1068	968	**811**
Juniper Street Inlet			1030			732	441	494	525	503	601	498	400	542	611	826	841	766	661	651	**633**
Outlet	430	793	925	666	651		574	633	504	510	784	573	570	496	1226	812	939	698	585	727	**689**
Maxwell Pond / Black Brook																					
Deep Spot/Former In	122	155	169	180	151	148	101	131	110	95	165	95	89	91	102	128	132	117	145	132	**128**
Inlet	120		672	180	151	148	101	137	109	93	162	93	88	91	102	127	137	117	146	130	**153**
Outlet	122	562	597	182	151	151	101	132	110	93	171	94	89	95	105	130	136	119	148	133	**171**
Nutts Pond																					
Epilimnion	485	714	580	786	599	877	469	545	620	610	765	610	652	723	927	1265	1355	989	1182	1011	**788**
Hypolimnion	1769	1960	1798	2018	2193	2615	2160	1124	1544	2447	2143	2407	1776	2187	2990	2797	2463	2570	2773	2780	**2226**
Inlet	826	1034	688			919	1011	900	678	996	922	850	746	992	1301	1577	862	1646	1661	1478	**1060**
Outlet	509	708	614	807	599	970	465	573	612	609	763	631	653	723	1226	1258	1369	964	1162	1007	**811**
Pine Island Pond																					
Epilimnion	287	383	316	339	256	324	235	252	289	207	428	329	306	306	370	534	634	510	452	495	**363**
Hypolimnion	305	350	318	306	268	320	237	221	328	251	399	340	262	283	378	515	610	443	517	480	**357**
Inlet	269	451	354	335	289	394	241	268	283	206	500	395	411	383	388	613	757	557	525	544	**408**
Outlet	273	382	317	330	270	303	236	281	289	208	432	334	303	296	377	534	643	521	446	491	**363**
Stevens Pond																					
Epilimnion	769	1149	1140	1258	860	1099	578	785	716	688	840	705	636	787	1143	1387	1277	1006	961	1000	**939**
Hypolimnion	792	1634	1248	1606	1041	1742	593	838	1451	1164	854	1553	843	1194	1764	1502	1348	1448	1488	1318	**1271**
Outlet		1097	1193	1316		1032	750	795	550	684	865	696	696	784	1134	1401	1273	1011	987	1000	**959**

Median pH Measurements

pH (Units)	Category
6.50 - 8.00	Satisfactory
5.50 - 6.49	Endangered
5.00 - 4.49	Critical
< 5.00	Acidified

pH is measured on a logarithmic scale of 0 to 14. Lake pH is important to the survival and reproduction of fish and other aquatic life. A pH below 5.5 severely limits the growth and reproduction of fish. The Class B surface water quality standard for pH in New Hampshire is a range of 6.5 - 8.0 units. **It is important to note that sometimes readings that fall below the range of 6.5 - 8.0 are determined to be naturally occurring.** This is often a result of wetlands near the sample station. Wetlands can lower pH because the tannic and humic acids released by decaying plants can cause water to become more acidic. Annual median and historic median pH measurements below 6.5 are highlighted in red in the table below to indicate stations that may exceed the threshold for pH on more than one occasion throughout the monitoring season.

Annual Median pH Measurements																				
Waterbody	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Crystal Lake																				
Epilimnion	7.10	7.31	7.13	7.08	6.92	6.98	6.88	7.28	7.20	7.10	7.17	7.08	7.18	7.15	7.11	Not Monitored	7.17	7.28	7.29	7.00
Hypolimnion	6.84	6.88	6.94	6.59	7.00	6.76	6.89	6.84	6.97	6.57	6.58	6.87	6.87	6.84	6.98	Not Monitored	6.85	7.03	6.74	6.92
Dorrs Pond																				
Epilimnion	7.24	7.26	7.24	7.15	6.87	6.82	7.10	7.23	6.81	7.10	7.04	6.85	7.28	6.81	6.94	7.31	7.03	6.94	7.33	7.19
Hypolimnion	6.74	7.14	7.02	7.11	7.14	6.71	6.82				7.17									
Inlet	6.91	7.05	6.98	6.95	7.01	6.87	6.96	7.03	6.92	7.12	7.11	7.03	7.00	6.93	6.98	6.90	6.96	6.85	7.02	7.05
East Inlet 2	7.26	7.38	7.23	7.16	7.16	6.83		7.18	7.06	7.26	7.10	7.11	7.24	7.24	7.26	7.14	6.99	7.12	7.21	7.11
Juniper Street Inlet	6.38	6.84	6.89			6.45	6.58	6.63	6.35	6.33	6.74	6.33	6.65	6.36	6.50	6.45	6.63	6.48	6.51	6.52
Outlet	7.11	7.30	7.14	7.21	7.04		7.05	7.15	6.94	7.16	7.22	7.20	7.32	7.06	6.97	7.07	7.00	6.95	6.69	7.10
Maxwell Pond / Black Brook																				
Deep Spot/Former Impoundment	6.41	6.48	6.51	6.18	6.32	6.36	6.25	6.61	6.25	6.62	6.47	6.06	6.41	6.29	6.66	6.49	6.63	6.35	6.38	6.61
Inlet	6.58	6.75	6.56	6.30	6.60	6.54	6.34	6.55	6.34	6.51	6.72	5.80	6.32	6.26	6.73	6.40	6.69	6.32	6.23	6.52
Outlet	6.66	6.93	6.42	6.47	6.61	6.41	6.59	6.79	6.47	6.66	6.78	5.56	6.51	6.32	6.46	6.67	6.45	6.43	6.43	6.52
Nutts Pond																				
Epilimnion	7.01	7.16	7.09	7.00	7.00	6.90	7.18	6.98	6.72	7.08	7.13	7.14	7.04	6.94	7.20	6.97	6.82	7.20	7.32	7.14
Hypolimnion	6.48	6.47	6.39	6.33	6.33	6.41	6.49	6.36	6.22	6.47	6.29	6.37	6.33	6.38	6.37	6.46	6.49	6.43	6.48	6.52
Inlet	6.94	6.89	6.72			6.77	7.06	6.91	6.66	6.86	7.11	7.05	7.07	7.00	6.98	6.87	6.60	6.85	7.00	7.05
Outlet	6.95	6.90	6.94	6.92	6.79	6.91	7.02	6.83	6.96	6.93	6.89	7.12	6.96	7.03	7.32	6.99	7.20	7.21	7.08	7.18
Pine Island Pond																				
Epilimnion	7.18	7.18	6.93	6.69	6.82	7.00	7.09	6.74	6.63	6.69	7.28	7.15	6.94	6.96	7.05	6.74	7.18	7.41	7.00	7.09
Hypolimnion	6.79	6.74	6.79	6.51	6.52	6.74	6.69	6.43	6.35	6.47	6.59	6.57	6.59	6.64	6.61	6.75	6.74	6.69	6.61	6.62
Inlet	6.90	6.95	6.92	6.77	6.82	7.01	7.08	7.03	6.57	6.64	7.03	7.09	7.08	7.06	7.12	7.03	7.35	7.10	7.13	7.16
Outlet	7.17	7.17	7.10	6.92	6.98	7.07	7.18	6.98	6.85	6.84	7.16	7.24	7.13	7.25	7.32	7.19	7.31	7.23	7.26	7.37
Stevens Pond																				
Epilimnion	7.28	7.28	7.10	7.10	7.25	7.00	7.29	7.26	6.96	7.22	7.29	7.14	7.35	7.01	6.97	6.85	7.08	6.98	7.28	7.20
Hypolimnion	7.08	7.05	6.95	7.00	6.71	6.68	6.82	6.76	6.46	6.57	6.68	6.56	6.71	6.58	6.71	6.91	6.70	6.62	6.76	6.65
Outlet		6.95	6.92	6.78	6.77	6.96	6.94	6.86	6.72	6.82	6.69	6.79	6.78	6.76	6.80	6.68	8.88	6.78	6.74	6.93

Average Water Clarity/Transparency Measurements in meters (m)

Clarity (m)	Category
<2	Poor
2 - 4.5	Good
> 4.5	Exceptional

The Secchi-disk is a 20cm disk with alternating black and white quadrants used to measure water clarity (how far a person can see into the water). Transparency, a measure of water clarity, is affected by the amount of algae, color, and particulate matter within a lake. **It is important to note that clarity values may vary depending on the maximum depth of the lake or pond.** For example, if the maximum depth of the pond is 3 meters, a good clarity reading would be 2-3 meters.

Annual Average & Historical Average Transparency Measurements (Without Viewscope)

Waterbody Max. Depth	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Historical Average
Crystal Lake 7.5 Meters	4.3	3.5	3.9	5.0	3.9	5.4	4.2	4.2	3.4	3.4	4.5	4.7	4.5	3.8	3.5	Not Monitored	4.3	3.7	4.0	3.6	**4.1**
Dorrs Pond 2.5 Meters	1.1	1.3	2.0	1.7	1.7	2.0	2.0	1.9	1.6	1.8	1.5	1.8	1.9	1.4	1.5	Not Monitored	1.2	1.7	1.3	1.6	**1.6**
Maxwell Pond 1.1 Meters	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	Since the Maxwell Pond Dam was removed (and Black Brook was restored) in 2009, Transparency is no longer measured since the water is no longer impounded to create a "deep spot."										
Nutts Pond 9.0 Meters	3.1	2.4	2.9	2.3	1.8	2.5	2.5	3.5	2.8	3.4	3.9	2.4	4.1	3.1	2.2	2.9	2.9	3.0	2.5	2.4	**2.8**
Pine Island Pond 5.0 Meters	1.9	1.9	1.9	1.9	1.8	1.9	1.8	1.8	2.1	2.0	2.1	1.5	2.1	2.0	2.1	1.6	1.4	1.7	1.6	1.4	**1.8**
Stevens Pond 5.5 Meters	2.6	2.5	3.0	1.7	2.6	3.2	2.3	2.0	1.9	2.4	2.6	2.4	2.3	2.5	2.6	3.0	2.2	2.5	2.2	2.3	**2.4**

Average Total Phosphorus (TP) Measurements in Milligrams per Liter (mg/L)

TP (mg/L)	Category
0.001 - 0.010	Low (Good)
0.011 - 0.020	Average
0.021 - 0.040	High
> 0.040	Excessive

Phosphorus is the most important water quality parameter measured in our lakes. It is the nutrient that limits the algae's ability to grow and reproduce. Phosphorus sources around a lake typically include septic systems, animal waste, lawn fertilizer, road and construction erosion, and natural wetlands. There is no numeric standard for total phosphorus for Class B waters, however, narrative criteria for phosphorus states that "unless naturally occurring, shall contain no phosphorus in such concentrations that would impair any existing or designated uses". The hypolimnion layer is the lower most layer of ponds and lakes. This is an area that is highly subjective to natural pond turnover during the spring and fall and also low dissolved oxygen conditions due to depth and decomposition. It is generally expected that the total phosphorus measurements in this layer (due again to decomposition of plants and animals) would be higher than in the Metalimnion (middle layer) or Epilimnion (top layer).

Annual Average & Historical Average Total Phosphorus Measurements

Waterbody	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Historical Average
Crystal Lake																					
Epilimnion	0.011	0.012	0.012	0.010	0.012	0.014	0.017	0.013	0.010	0.012	0.014	0.015	0.011	0.014	0.013	Not Monitored	0.012	0.011	0.012	0.011	**0.012**
Metalimnion	0.010	0.017			0.009			0.013	0.010	0.011	0.014	0.015	0.014	0.013	0.014	Not Monitored	0.012	0.014	0.015	0.011	**0.013**
Hypolimnion	0.025	0.017	0.014	0.018	0.018	0.013	0.017	0.018	0.017	0.021	0.026	0.020	0.017	0.016	0.013	Not Monitored	0.021	0.014	0.019	0.017	**0.018**
Dorrs Pond																					
Epilimnion	0.045	0.027	0.021	0.024	0.028	0.026	0.030	0.022	0.027	0.028	0.026	0.025	0.101	0.243	0.023	0.022	0.031	0.023	0.029	0.022	**0.041**
Hypolimnion	0.088	0.029	0.127	0.022	0.033	0.027	0.029				0.022										**0.047**
Inlet	0.171	0.035	0.025	0.077	0.026	0.026	0.026	0.027	0.024	0.026	0.032	0.031	0.113	0.033	0.029	0.025	0.036	0.028	0.030	0.031	**0.043**
East Inlet 2	0.039	0.024	0.021	0.014	0.038	0.032		0.025	0.023	0.025	0.035	0.026	0.092	0.111	0.016	0.023	0.502	0.016	0.019	0.019	**0.058**
Juniper Street Inlet		0.025	0.250			0.014	0.016	0.028	0.015	0.017	0.021	0.014	0.056	0.014	0.012	0.014	0.071	0.011	0.016	0.016	**0.036**
Outlet	0.042	0.030	0.031	0.025	0.028		0.024	0.027	0.024	0.025	0.025	0.023	0.024	0.029	0.021	0.031	0.030	0.022	0.031	0.024	**0.027**
Maxwell Pond/Black Brook																					
Deep Spot/Former Impoundment	0.014	0.018	0.015	0.017	0.022	0.020	0.018	0.022	0.023	0.025	0.019	0.021									**0.020**
Inlet	0.015	0.013	0.021	0.015	0.021	0.018	0.016	0.017	0.022	0.029	0.020	0.022									**0.019**
Outlet	0.017	0.016	0.014	0.015	0.021	0.019	0.019	0.019	0.023	0.027	0.016	0.029									**0.020**
Nutts Pond																					
Epilimnion	0.017	0.023	0.024	0.032	0.021	0.028	0.024	0.023	0.019	0.018	0.015	0.019	0.015	0.018	0.012	0.014	0.017	0.016	0.018	0.018	**0.020**
Metalimnion	0.054	0.030	0.028	0.032	0.025	0.032	0.028	0.028	0.024	0.020	0.017	0.026	0.067	0.025	0.017	0.022	0.080	0.017	0.017	0.044	**0.032**
Hypolimnion	0.089	0.097	0.179	0.109	0.082	0.064	0.088	0.045	0.039	0.051	0.101	0.076	0.372	0.083	0.061	0.072	0.078	0.054	0.069	0.064	**0.094**
Inlet	0.026	0.014	0.018				0.027	0.042	0.034	0.032	0.033	0.028	0.026	0.024	0.017	0.024	0.203	0.031	0.036	0.077	**0.041**
Outlet	0.021	0.038	0.021			0.036	0.021	0.022	0.018	0.018	0.034	0.018	0.058	0.018	0.012	0.014	0.018	0.018	0.022	0.019	**0.024**
Pine Island Pond																					
Epilimnion	0.024	0.016	0.029	0.029	0.024	0.021	0.026	0.022	0.029	0.021	0.020	0.028	0.027	0.022	0.024	0.026	0.020	0.024	0.024	0.029	**0.024**
Metalimnion	0.025	0.024		0.027	0.010	0.010	0.029	0.026	0.033	0.022	0.024	0.035	0.035	0.034	0.025	0.029	0.022	0.027	0.026	0.034	**0.026**
Hypolimnion	0.028	0.030	0.030	0.031	0.034	0.032	0.032	0.055	0.072	0.029	0.047	0.053	0.194	0.033	0.058	0.038	0.045	0.037	0.046	0.050	**0.049**
Inlet	0.024	0.050	0.022	0.032	0.021	0.018	0.018	0.018	0.025	0.021	0.016	0.024	0.017	0.020	0.016	0.015	0.012	0.019	0.022	0.017	**0.021**
Outlet	0.022	0.016	0.022		0.022	0.026	0.026	0.022	0.026	0.021	0.017	0.025	0.023	0.021	0.020	0.020	0.017	0.023	0.023	0.024	**0.022**
Stevens Pond																					
Epilimnion	0.019	0.025	0.018	0.017	0.022	0.017	0.031	0.030	0.042	0.024	0.026	0.025	0.025	0.026	0.018	0.019	0.028	0.022	0.032	0.019	**0.024**
Metalimnion	0.029	0.018	0.015	0.018	0.040	0.021	0.036	0.036	0.026	0.036	0.037	0.028	0.107	0.027	0.019	0.021	0.034	0.022	0.034	0.026	**0.032**
Hypolimnion	0.042	0.023	0.035	0.027	0.081	0.027	0.034	0.047	0.048	0.066	0.058	0.075	0.166	0.062	0.033	0.017	0.048	0.092	0.049	0.091	**0.056**
Outlet		0.026	0.017	0.013	0.021	0.018		0.036	0.029	0.019	0.035	0.024	0.071	0.021	0.028	0.019	0.021	0.016	0.024	0.017	**0.025**

Average Turbidity Measurements in Nephelometric Turbidity Units (NTUs)

Turbidity in the water is caused by suspended matter (such as clay, silt, and algae) that cause light to be scattered and absorbed, not transmitted in straight lines through the water. High turbidity readings are often found in water adjacent to construction sites. Also, improper sampling techniques (such as hitting the bottom sediments or sampling streams with little flow) may also cause high turbidity readings. The Class B water quality standard for turbidity 10 NTUs over the background level. Annual averages and historic averages for turbidity measurements above 10 NTU are highlighted in orange in the table below to indicate stations that may exceed the threshold for turbidity on more than one occasion throughout the monitoring season. **However, it is important to note that background levels have not been adequately determined at this time.**

Annual Average & Historical Average Turbidity Measurements																					
Waterbody	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Historical Average**
Crystal Lake																					
Epilimnion	0.49	0.89	2.21	0.79	1.64	0.82	1.41	1.79	1.04	1.25	0.92	1.68	1.11	1.18	1.22	Not Monitored	1.41	1.22	1.12	1.05	**1.22**
Metalimnion	0.51	1.05		0.84	1.78			1.05	1.20	1.72	0.88	1.46	1.00	1.01	1.60	Not Monitored	1.63	1.10	1.17	1.22	**1.20**
Hypolimnion	3.07	1.24	2.00	1.63	2.35	1.12	1.18	1.45	1.54	2.05	1.90	1.41	1.36	1.04	1.71	Not Monitored	1.44	1.45	1.61	1.62	**1.64**
Dorrs Pond																					
Epilimnion	3.75	3.70	3.22	3.42	4.61	2.45	3.13	2.51	3.49	2.47	3.99	3.20	3.32	3.43	5.04	5.05	7.08	2.82	2.79	2.35	**3.59**
Hypolimnion	8.10	4.13	3.54	4.87	5.44	2.69	3.16			4.55	3.08										**4.40**
Inlet	5.37	6.05	12.61	32.42	5.43	3.78	3.84	6.63	3.42	4.81	12.70	6.03	9.70	3.04	5.97	5.82	8.79	4.50	2.89	10.39	**7.71**
East Inlet 2	2.37	1.13	0.80	0.92	6.59	2.24		0.74	1.32	2.67	0.80	0.88	1.00	0.99	1.00	0.61	0.87	0.59	0.80	0.47	**1.41**
Juniper Street Inlet			69.37			0.68	8.24	12.60	2.52	4.55	13.57	9.73	35.10	4.61	5.60	5.21	5.73	3.72	4.12	4.74	**11.88**
Outlet	2.88	3.50	4.84	3.21	4.23		2.29	2.54	3.14	2.46	3.14	2.93	3.31	2.65	2.19	3.22	5.75	2.27	2.86	1.58	**3.10**
Maxwell Pond																					
Deep Spot/Former Impoundment	2.03	3.39	2.16	2.57	2.12	1.69	1.63	2.09	2.09	2.43	3.87	1.76	1.82	1.65	1.25	0.94	1.40	1.19	1.76	1.28	**1.96**
Inlet	1.10	0.72	3.12	2.00	2.77	1.38	1.37	1.38	2.14	2.24	4.38	1.60	1.84	1.65	1.33	1.29	1.87	0.98	1.65	1.68	**1.82**
Outlet	2.10	2.93	2.46	2.26	2.96	1.41	1.40	1.70	2.37	2.62	3.48	1.98	1.66	1.80	1.14	1.08	1.63	1.13	1.60	1.56	**1.96**
Nutts Pond																					
Epilimnion	0.93	1.76	3.83	2.80	5.32	2.64	1.71	1.43	1.54	1.15	1.08	1.70	1.20	1.44	2.38	1.86	1.82	1.61	1.88	1.77	**1.99**
Metalimnion	1.94	3.38	3.53	2.43	5.74	2.34	1.77	2.63	2.78	1.62	26.90	2.18	2.04	2.17	3.89	4.01	2.87	2.26	2.49	3.20	**4.01**
Hypolimnion	39.84	31.42	43.32	60.14	76.30	61.30	33.06	56.41	11.15	60.87	69.78	70.67	92.97	46.21	#####	78.93	####	62.34	37.53	39.60	**59.42**
Inlet	0.24	3.39	0.96			3.14	1.36	1.50	1.73	1.04	2.20	0.79	0.67	0.69	1.63	0.97	1.24	1.38	2.20	1.58	**1.48**
Outlet	1.12	2.93	2.46	2.26	2.96	1.41	1.40	1.70	2.37	2.62	3.48	1.98	1.66	1.88	2.19	1.82	2.00	1.74	1.75	1.86	**2.08**
Pine Island Pond																					
Epilimnion	1.34	1.69	3.19	3.54	3.01	2.12	2.65	2.38	2.51	1.56	1.65	2.23	1.96	1.48	2.63	4.45	2.67	1.94	1.93	3.42	**2.42**
Metalimnion	1.30	3.15		3.27		2.23	2.75	2.63	3.10	1.69	2.45	2.97	2.82	2.46	2.83	5.81	3.06	2.71	2.89	5.49	**2.98**
Hypolimnion	1.86	6.37	6.02	7.91	9.21	6.05	5.68	15.14	24.00	4.98	11.19	11.13	12.37	7.30	10.56	7.03	14.63	7.06	15.46	12.35	**9.82**
Inlet	2.56	2.01	2.34	2.97	2.62	2.00	1.71	1.96	2.09	1.91	1.18	1.93	1.67	1.39	1.63	1.95	1.32	1.92	1.98	1.78	**1.95**
Outlet	1.09	1.31	2.28	3.08	2.77	1.74	2.21	2.12	2.09	1.53	0.73	1.57	1.14	1.01	1.44	2.10	1.12	1.54	1.73	2.27	**1.74**
Stevens Pond																					
Epilimnion	2.36	2.23	2.45	2.63	2.30	1.64	2.98	2.26	2.73	1.37	1.67	2.05	2.28	1.30	2.48	1.65	3.37	1.46	3.38	1.77	**2.22**
Metalimnion	2.34	1.75	2.88	2.07	3.84	2.20	3.20	2.76	3.67	3.20	2.91	1.99	3.25	2.00	2.33	1.63	3.86	1.95	2.75	2.13	**2.64**
Hypolimnion	9.80	2.65	15.24	3.68	22.87	2.59	10.17	4.92	9.68	14.48	12.50	12.63	16.64	11.69	9.50	1.55	12.92	2.51	9.35	24.37	**10.49**
Outlet		2.32	2.47	1.74		1.09	1.32	2.82	2.32	1.22	2.59	1.15	1.34	1.12	2.55	1.97	2.03	1.39	1.57	1.43	**1.80**